

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/522,407

AMENDMENTS TO THE SPECIFICATION

Please replace the present title with the following rewritten title:

DEVICE FOR DYNAMICALLY VARYING THE PRIORITY OF VARIOUS
PROCESSING IN A PRINTER, PRINTER CONTROL METHOD AND STORAGE MEDIUM
FOR RECORDING PROGRAM

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Please replace the first paragraph on page 3 with the following amended paragraph:

Therefore, in the case of only the transfer of print job data via an auxiliary storage, it takes much time to write and read to/from the auxiliary storage, and thus, printing processing is greatly ~~relayed~~delayed. In this case, if a high speed interface, DMA and others are adopted, the data transfer rate of an auxiliary storage is enhance, however, the cost of a printer is increased.

Please replace the third paragraph on page 12 with the following amended paragraph:

The communication task 11 acts as a communications processor unit and when a packet is set from the network 100, the unit is activated via CPU. The communication task 11 deletes extra data such as an IP address from the received packet and extracts print data. The print data is stored until a predetermined memory block provided to RAM 4 is filled. The communication task 11 ~~becomes sleeping~~is dormant when the storage of the print data is finished. As described later, a memory block in which data is stored is passed to the task for writing to HD 12. The communication task 11 can be composed of plural tasks corresponding to each protocol such as a file transfer protocol (FTP) and a line printer protocol (LPP).

Please replace the third paragraph on page 13 with the following amended paragraph:

The image generation task 14 acts as a print image generator and is activated when a memory block in which data is stored is passed. The image generation task 14 reads print data in the memory block of RAM 4, generates a request for printing and passes the generated request

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for printing to the printing task 15. When all print data is read, the image generation task ~~becomes sleeping is dormant.~~

Please replace the first and second paragraphs on page 16 with the following amended paragraphs:

Fig. 3 is a schematic diagram showing the flow of data from the communication task 11 to HD 10 further in detail. That is, the communication task 11 deletes extra data such as header information from a received packet and stores data until an empty memory block of the first buffer memory 4a is filled. The task for writing to HD 12 extracts data fro a memory block 21 when the memory block 21 not empty is received and writes data to an empty file inside HD 10. The memory block 21 from which data is extracted is returned to the first buffer memory 4a.

Fig. 4 is a flowchart showing processing by the communication task 11 in the configuration shown in Fig. 3. The communication task 11 is activated in the step S101 when packet data is received from the network 100. Next, in a step S102, it is checked whether an empty memory block 21 exists in the first buffer memory 4a or not. If an empty memory block 21 exists in the step S102, one empty memory block 21 is extracted from the first buffer memory 4a and data is stored in the memory block 21 in a step S103. If no empty memory block 21 exists in the first buffer memory 4a, processing is returned to the step S102 because no data can be stored. When data is stored in the first buffer memory 4a in the step S103, processing is returned to the step S101 and waits.

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Please replace the first paragraph on page 17 with the following amended paragraph:

Next, Fig. 5 is a flowchart showing the processing of the task for writing to HD 12. First, If it is checked whether empty capacity exists in HD 10 or not in a step S111. If empty capacity exists in HD 10, data can be transferred to HD 10. If it is checked in a step S112 whether an empty memory block 21 exists in the first buffer memory 4a or not and it is checked in a step S113 whether the communication task 11 receives the next print job and requires an empty memory block 21 or not. If no empty memory block 21 exists in the first buffer memory 4a and the communication task 11 requires a new empty memory block 21, data is extracted from a memory block 21 not empty and a file is written to HD 10 in a step S114 to generate an empty memory block 21. The memory block 21 from which data is extracted is returned to the first buffer memory 4a in a step S115. Hereby, the communication task 11 can store packet data newly received in the memory block 21.

Please replace the first paragraph on page 22 with the following amended paragraph:

That is, the major object of the present invention is to dynamically change the priority of the task for writing to HD so that it is higher than the priority of another any other task. Therefore, it is desirable that the priority of the printing task, the communication task and the image generation task is suitably changed according to the format of a printer.

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Please replace the third paragraph on page 22 with the following amended paragraph:

Fig. 10 is a flowchart showing a case that the priority of the task for writing to HD 12 is periodically rewritten. That is, when processing is started, first, processing waits by predetermined time X in a step S1. The above time X is ~~concretely~~ approximately 10 seconds. When predetermined time X elapses, the priority of the task for writing to HD 12 is rewritten so that it is higher than the priority of the image generation task 14 in a step S2. That is, the priority changing section 19 sets so that the priority of the task for writing to HD 12 stored in the priority table 18 is lower than the priority of the image generation task 14. If the priority of the image generation task 14 is set to 146 for example, the priority of the task for writing to HD 12 is rewritten so that it is 147.

Please replace the third paragraph on page 29 with the following amended paragraph:

It is desirable that the above series of ~~step is suitably steps are~~ repeatedly executed in accordance with the proceedings of processing in the printing task. The priority of the task for reading from HD may be also changed at the same time as the change of the priority of the task for writing to HD. However, in this case, as described above, it is desirable that the priority of the task for reading from HD is set so that it is ~~approximately~~ always higher than the priority of the task for writing to HD.

Please replace the third paragraph on page 33 with the following amended paragraph:

For example, as shown in Fig. 17A, at the beginning of the receiving of a print job, transfer is performed in the first bypass mode. Then, when the communication task 11 uses up a memory block of the second buffer memory 4b, received data is stored in a memory block of the first buffer memory 4a. While the communication task 11 uses the first buffer memory 4a, the image generation task 14 receives a memory block not empty from the second buffer memory 4b and generates a request for printing. As described above, when a full memory block occurs in the first buffer memory 4a under a situation that no residual file exists (as determined by the residual file detector 23) in HD 10, the first bypass mode is switched to the second bypass mode by the task for writing to HD 12. In the second bypass mode, the task for writing to HD stores data in a memory block of the second buffer memory 4b. When there is no empty memory block in the second buffer memory 4b by switching to the second bypass mode, the second bypass mode is switched to the mode via the auxiliary storage (the normal mode) and data is input to the image generation task 14 via HD 10. In the normal mode, the priority of the task for writing to HD 12 for the image generation task 14 is changed as in the first or second embodiment.

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Please delete the present Abstract of the Disclosure and replace it with the following new Abstract of the Disclosure.

An image can be smoothly generated without delaying the release of a host by dynamically changing the priority of a task for writing to ~~HD~~ a hard disk for the priority of another task. The dynamic varying of the priorities of the different types of tasks is dependent upon predetermined events or triggers, which thereby prevents the ~~In other words, a situation that the release delay of a host thereby is delayed can be prevented, so that successive images can be smoothly generated generating images for seven lines.~~

RJP